Using Radiometric Measurements to Measure Purge Bin Polymer Inventory Levels

The product purge bin is a vessel that is common to most polyolefin production operations. The polyethylene/polypropylene process utilizes the purge bin to remove unreacted olefin gases from the produced polymer particles before they are sent to pelletizing and packing. Maintaining optimal inventory in the purge bin ensures that there is sufficient residence time in the bin to fully remove hazardous gases and ensuring that the inventory does not overfill backing polymer production into the reaction/extraction sections of the process.

The measurement can be accomplished by using continuous level measurement and/or point level measurements to provide indication and control value inputs to the DCS. Low-level and high-level indication are supplied by the VEGA PoinTrac31 detectors, which are qualified to SIL2 rating. Continuous level measurement can be supplied for as variety of required measurement ranges using the SoliTrac31 (max length of 10'), the FiberTrac31 (max length of 23'), or using multiple detectors cascaded for providing longer measurements spans as required.

The product purge bin vessel design can vary based upon the license technology utilized by your facility. These can be internal structures (flow diverting or agitator structures), variable volume or ID shell design, and operating level elevations/ranges and safe operation control-based process licensor recommendation. VEGA has experience in providing radiometric measurements on Purge bins and balance of unit for the majority of low-pressure polyolefin technology licensors and can help to provide our insights from previous installations.

If you have questions regarding the use of radiometric measurements for operating level control or indication on the Purge bin or other applications within your polymer production unit, please contact a VEGA Applications Engineer or Sales associate.